

Date: Wednesday, 13/08/2008 10:09:32 AM  
 User: Julie Lecocq

## Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : AFT TUBE ASSEMBLY  
 Job Number : 41189  
 Estimate Number : 10699  
 P.O. Number :  
 This Issue : 13/08/2008 S.O. No. :  
 Prsht Rev. : NC Part Number : D3391025  
 First Issue : / / Type : SKIDTUBES Drawing Number : D3391 REV G  
 Drawing Revision : G  
 Previous Run : 40526 Material :  
 Due Date : 28/08/2008 Qty: 1 Um: Each  
 Written By :  
 Checked & Approved By : JUL 08.8.13  
 Comment : Est Rev B 06-02-07 ECN773 dwg rev. D EC  
 Est Rev:C 06-03-28 Update Manuf. Instructions JLM

est rev D 07.03.20 revF dwg EC  
 est rev E 07.11.07 rev G dwg ecn 1053p EC verified by:  
 DD  
 Est Rev:F 07-11-13 ECN 1056 DD verified by: EC

## Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 D6014090 ALUMINUM EXTRUSION



Comment: Qty.: 1.0000 f(s)/Unit Total : 1.0000 f(s)

ALUMINUM EXTRUSION

Pick:

Qty Part Number Description Batch

1 D6014-090 Extrusion B 32309

Identify as D3391-3

am 08.08.21 ①

2.0 MORI SEIKI MORI SEIKI CNC LATHE LARGE



PhD →

Comment: MORI SEIKI CNC LATHE LARGE

Turn as per Folio FA599

Rev: AA & Dwg D3391 Rev: G

am 08.08.21 ②

3.0 QC2 INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

am 08.08.21 ①

4.0 HAAS1 HAAS CNC VERTICAL MACHINING #1



\* see Last page \*

Comment: HAAS

1-Machine as per Folio FA 599 Rev: AA & Dwg D3391 Rev: G

2-Deburr

SP 08/09/02

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3391-025 PAR #: N/A Fault Category: Prod / Machine <sup>x-tube</sup> NCR: Yes No DQA: D Date: 08/09/20  
QA: N/C Closed: D Date: 08/09/20

NCR: <u>41189</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
8/8/19	20	Tube was Piced to length @ 88.875" supposed to be 88.930" P.C. operator took too much off.	PK QSS 042 08.08.19	Compensate for length on att tapered end. I.E. drill att hole at 0.340 from end.	A.M 08.08.21 08.09.20	S 08/09/20	PK QSS 042 08.08.19	S 08/08/19
				- Keep taper the same - maintain dim 7.500" to 2st GHW hole - SEE ATTACHED				

NOTE: Date & initial all entries

Date: Wednesday, 13/08/2008 10:09:32 AM  
User: Julie Leccocq

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 41189

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

26 08/09/03

6.0

QC8

SECOND CHECK



Comment: SECOND CHECK

26 08/09/03

7.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill ( PILOT HOLE) aft cap holes per Dwg D3391 using DT8803

LT 08-09-04

\* See Last Page \*

8.0

BENDING

BENDING MACHINE - SKIDTUBES



Comment: NC Bender

Form as per Dwg D3391 Using Bend Prog 3391025

LT 08-09-04

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

26 08/09/04

10.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Open Aft cap pilot hole to .208" as per Dwg D3391

2-Drill float bag holes using DT8809 as per Dwg D3391(Holes marked "A" Only.

3-Drill wearplate holes as per Dwg D3391 using DT8878(Mid Tube) & DT8217 Wearplate Jig

\*\*\*\*\*Do Not Open To Finished Size\*\*\*\*\*

4-Drill Wearshoe holes as per DWG D3391 using DT8939 locating from 2 previously drilled aft wearplate holes.

5-Open wearplate holes to 0.250" and c'bore as per dwg D3391

6-Open up all wearshoe, wearplate to 0.297" and float bag holes to 0.328" as per Dwg D3391.

7-Deburr

K  
3-9-8

Tools: rill

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Wednesday, 13/08/2008 10:09:32 AM  
User: Julie Lécocq

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 41189

Part Number: D3391025

Job Number:



Seq. #: Machine Or Operation: Description :

11.0 QC5 INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 08/09/08 (X)

12.0 HAND FINISHING1 HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1  
Acid etch and Alodine as per QSI 005 4.1

AWM 8-9-9

13.0 QC3 INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

M 8-9-9

14.0 D36704200 SPACER



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

SPACER

batch:

B 3 6 8 1 8

(X)

8-9-9

M

15.0 SKIDTUBES 1 SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1  
Instal spacers as per dwg D3391

A/R Magnabond 6398 Batch:

M 10 8 9 6 6

exp. date:

12/06/08 9-10-1

cure time 12hrs as per QSI0015

M 8-9-9

16.0 QC5 INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 08/09/15 (X)

17.0 POWDER COATING POWDER COATING



Comment: POWDER COATING  
Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

M 10 8 5 2 3

START TIME:

2:00pm

OVEN TEMPERATURE:

320°F

FINISH TIME:

2:30pm

HL

08-09-15

(X)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Wednesday, 13/08/2008 10:09:32 AM  
User: Julie Lecocq

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 41189

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

18.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



(IX)

Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

m/l 08/09/16

19.0

D2646

Aft Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Aft Cap

Pick:

Qty Part Number Description Batch

1 D2646 Aft Cap

B37755 m/l

20.0

D35371

Wearpad



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

WEARPAD

B38941 m/l

21.0

D35377

Wearpad



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Wearpad

B33869 m/l

22.0

D35531

Gasket



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Gasket

B31630 m/l

23.0

D35533

Gasket



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Gasket

B33870 m/l

24.0

D36721

Phenolic Washer



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

PHENOLIC WASHER

B39275 m/l

25.0

ALS41032130

Insert



Comment: Qty.: 14.0000 Each(s)/Unit Total : 14.0000 Each(s)

INSERT

batch:

M105819

m/l 08/09/16

(IX)

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



Date: Wednesday, 13/08/2008 10:09:32 AM  
User: Julie Lecocq

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 41189

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

or equivalent per  
QSI 017

26.0

ALS41032225

Insert



Comment: Qty.: 12.0000 Each(s)/Unit Total : 12.0000 Each(s)  
INSERT  
or equivalent  
Per QSI 017

M100489 M-L

27.0

AN3C4A

BOLT



Comment: Qty.: 6.0000 Each(s)/Unit Total : 6.0000 Each(s)  
Bolt  
Pick:  
Qty Part Number Description Batch  
2 AN3C4A Bolt

M109148 M-L

28.0

AN3C5A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)  
Bolt

M108744 M-L

29.0

AN960C10L

washer



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)  
Inventory  
Pick:  
Qty Part Number Description Batch  
2 AN960C10L Washer

M108255 M-L

30.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: SMALL & MEDIUM FAB RESOURCE 1  
1-Install inserts as per Dwg D3391

2-Install Aft Cap as per Dwg D3391  
A/R Sikaflex-241/-291

Sikaflex expiry date:

M108801  
08/10

M-L 08/09/16

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Wednesday, 13/08/2008 10:09:32 AM  
User: Julie Lécocq

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 41189

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

31.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

508/09/29 @

32.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: LPP 41691

PC 8/9/29 (1)

33.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

08/09/30

Job Completion



mf 08-09-30

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> 41189
<b>Description:</b> Float Skidtube (412)		<b>Part Number:</b> D3391-3
<b>Inspection Dwg:</b> D3391 <b>Rev:</b> G		<b>Page 1 of 1</b>

### FIRST ARTICLE INSPECTION CHECKLIST

☒ **First Article**
                 
 ☐ **Prototype**

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
14.000	+/-0.010	14.000	✓			
3.500	+/-0.010	3.498	✓			
88.93	+/-0.030	88.98	✓			
44.995	+/-0.030	44.995	✓			
3.200	+/-0.010	3.204	✓			
1.526	+0.000/-0.030	1.526	✓			
0.200	+/-0.010	.204	✓			
7.500	+/-0.010	7.490	✓			
27.750	+/-0.010	27.740	✓			
31.750	+/-0.010	31.740	✓			
35.250	+/-0.010	35.240	✓			
3.300	+/-0.010	3.291	✓			
<del>0.200</del>	<del>+/-0.010</del>					
3.520	+/-0.010	3.517	✓			
0.687	+0.010/-0.000	.689	✓			
R0.062	+/-0.010	.062	✓			
Ø0.484	+0.005/-0.001	.488	✓			

<b>Measured by:</b> A-n / A	<b>Audited by:</b> [Signature]	<b>Prototype Approval:</b>	N/A
<b>Date:</b> 08.08.21	<b>Date:</b> 08/09/23	<b>Date:</b>	N/A

Rev	Date	Change	Revised by	Approved
A	06.04.24	New Issue      P/O D3391-015/-025	KJ/JLM	
B	06.06.19	Dwg revision update	KJ/JLM	
C	07.04.20	Ø0.208 dimension removed	KJ/JLM	
D	07.09.06	0.400 dimension removed	KJ/JLM	
E	07.11.23	Dwg Rev. updated	KJ/EC/DD	[Signature]

**Dart Aerospace Ltd**

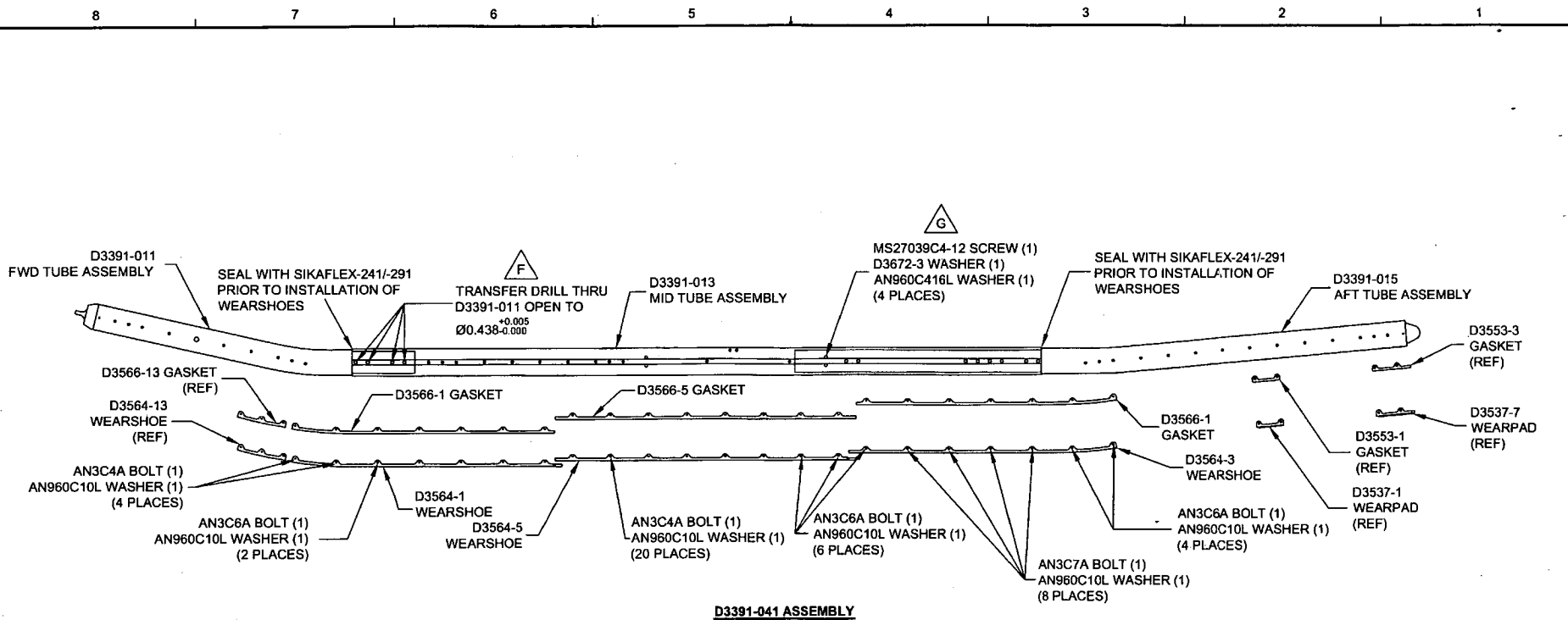
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



**D3391-041 ASSEMBLY**

**RELEASED**  
27.11.06

**D3391-041 FLOAT SKIDTUBE ASSEMBLY PARTS LIST**

QTY /UNIT	PART NUMBER	DESCRIPTION
X	D3391-041	FLOAT SKIDTUBE ASSEMBLY
1	D3391-011	FWD TUBE ASSEMBLY
1	D3391-013	MID TUBE ASSEMBLY
1	D3391-015	AFT TUBE ASSEMBLY
1	D3564-1	WEARSHOE
1	D3564-3	WEARSHOE
1	D3564-5	WEARSHOE
2	D3566-1	GASKET
1	D3566-5	GASKET
4	D3672-3	WASHER
24	AN3C4A	BOLT
12	AN3C6A	BOLT
8	AN3C7A	BOLT
4	AN960C10L	WASHER
1	MS27039C4-12	SCREW
1	AN960C416L	WASHER

**GENERAL NOTES**

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH  
AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH  
LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS  
OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES  
FOR WEARSHOE INSERTS. CBOR AS NOTED AND INSTALL INSERTS EXCEPT  
WHERE INDICATED.

G	REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY	DC	07.07.31
F	ADD SS WEARSHOE, GASKET REMOVE FWJ SADDLE HOLE -011/-021	PH	07.01.18
E	CHANGE TOLERANCE, EASE MANUFACTURE	PH	06.04.25
D	UPDATE TOLERANCE, CHANGE HOLE SIZE	PH	06.01.23
C	LENGTHEN AFT EXTENSION	PH	05.09.27
B	DRAWING UPDATES	PH	05.06.10
A	NEW ISSUE	PH	05.02.07
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	07.07.31		

**DART AEROSPACE USA, INC**  
PORT HADLOCK, WA

DRAWING NO. D3391 REV. G  
SHEET 1 OF 8

TITLE 412 FLOAT SKIDTUBE SCALE NTS

COPYRIGHT © 2005 BY DART AEROSPACE USA, INC  
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL. AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS  
NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT  
WRITTEN PERMISSION FROM DART AEROSPACE USA, INC

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO 4778

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

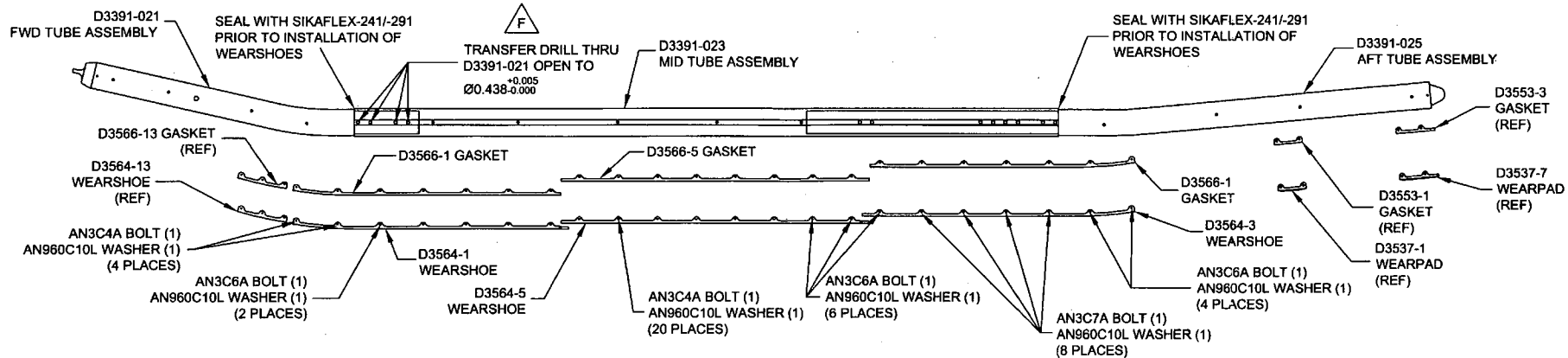
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries





**D3391-043 ASSEMBLY**

**RELEASED**  
07.11.94

**D3391-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST**

QTY	PART NUMBER	DESCRIPTION
X	D3391-043	FLOAT SKIDTUBE ASSEMBLY
1	D3391-021	FWD TUBE ASSEMBLY
1	D3391-023	MID TUBE ASSEMBLY
1	D3391-025	AFT TUBE ASSEMBLY
1	D3564-1	WEARSHOE
1	D3564-3	WEARSHOE
1	D3564-5	WEARSHOE
2	D3566-1	GASKET
1	D3566-5	GASKET
24	AN3C4A	BOLT
12	AN3C6A	BOLT
8	AN3C7A	BOLT
24	AN960C10L	WASHER

**GENERAL NOTES**

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.

DESIGN		<b>DART AEROSPACE USA, INC</b>	
DRAWN		PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. G
MFG. APPR.		D3391	SHEET 2 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
DATE		07.07.31	
<small>COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>			

NO. 412  
WORK ORDER  
WITHOUT NOTICE  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT

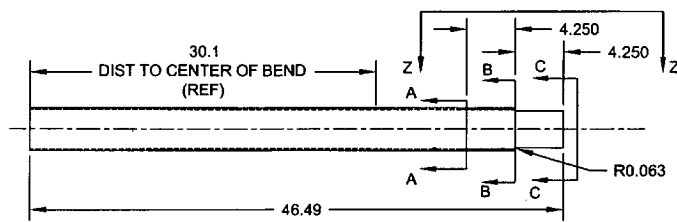
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

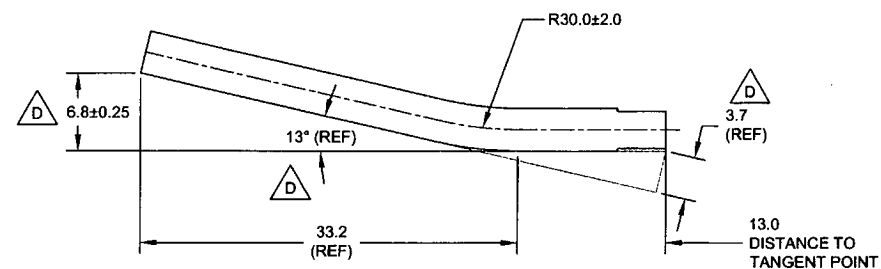
QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

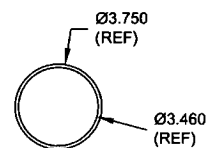
NOTE: Date & initial all entries



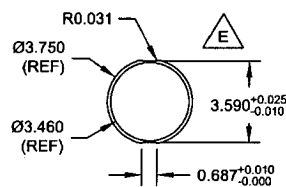
**D3391-1 CUTTING DETAIL**  
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



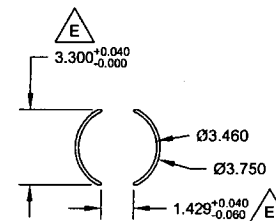
**D3391-011/-021 BENDING DETAIL**  
(MAKE FROM D3391-1)



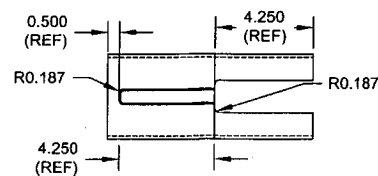
**SECTION A-A**  
(SCALE 1:5)



**SECTION B-B**  
(SCALE 1:5)



**SECTION C-C**  
(SCALE 1:5)



**VIEW Z-Z**  
(SCALE 1:5)

RELEASED  
07-11-06 MP

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 41184

DESIGN		<b>DART AEROSPACE USA, INC</b>	
DRAWN		PORT HADLOCK, WA	
CHECKED		DRAWING NO. D3391	REV. G SHEET 3 OF 8
MFG. APPR.		TITLE 412 FLOAT SKIDTUBE	SCALE 1:10
APPROVED		DATE 07.07.31	
DE APPR.		<small>COPYRIGHT © 2008 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

**Dart Aerospace Ltd**

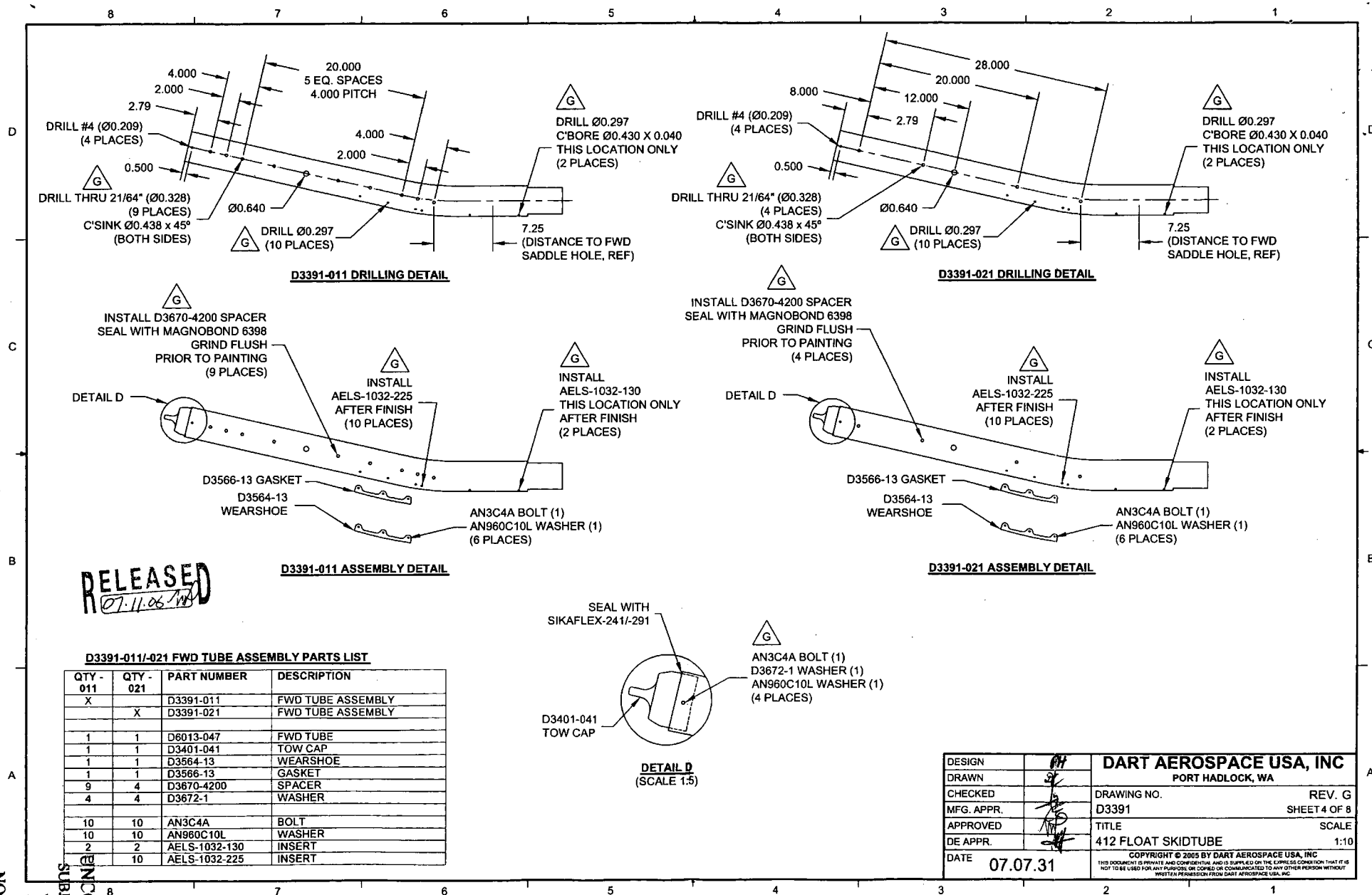
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



RELEASED  
07-11-06

DESIGN		<b>DART AEROSPACE USA, INC</b>	
DRAWN		PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. G
MFG. APPR.		D3391	SHEET 4 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	1:10
DATE	07.07.31	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC	
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COMES OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.			

NO. 4178  
WORK ORDER  
WITHOUT NOTICE  
SUBJECT TO AMENDMENT  
UNCONTROLLED COPY  
ENGINEERING  
RETURN TO  
SHOP COPY  
10/11/06

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

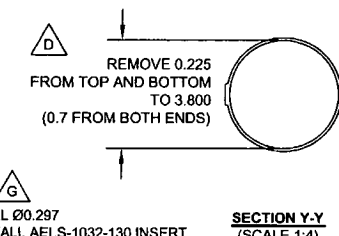
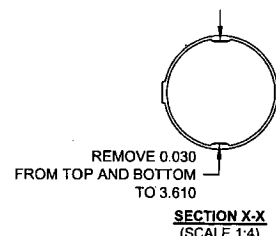
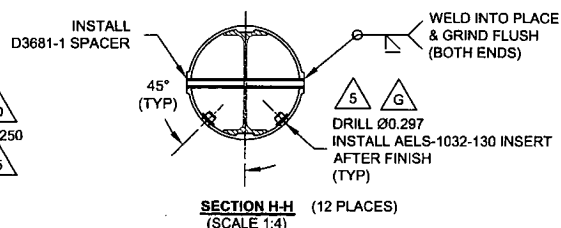
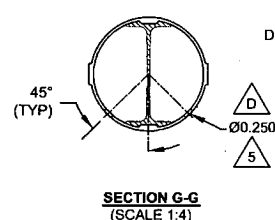
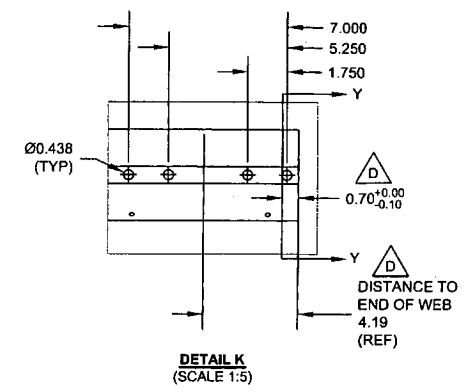
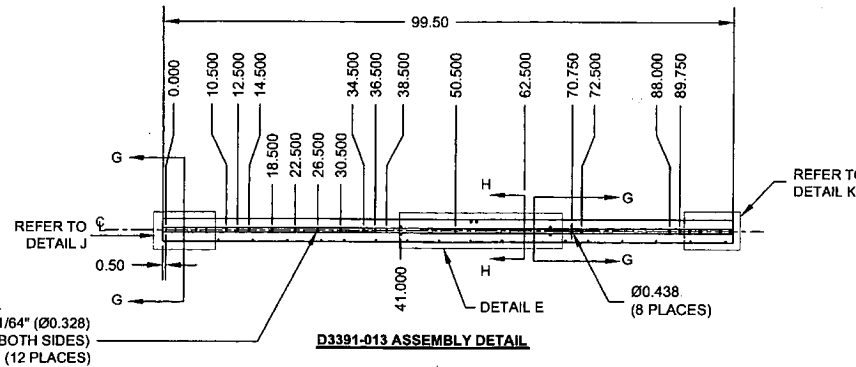
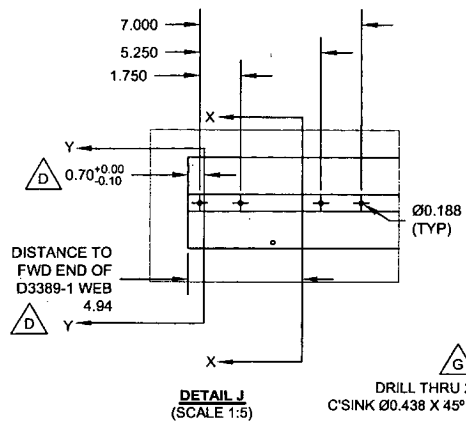
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

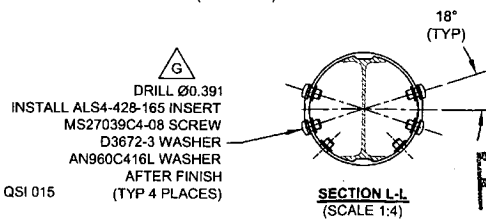
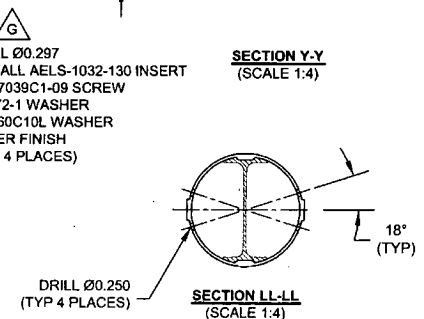
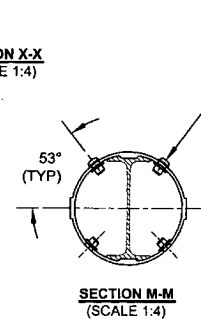
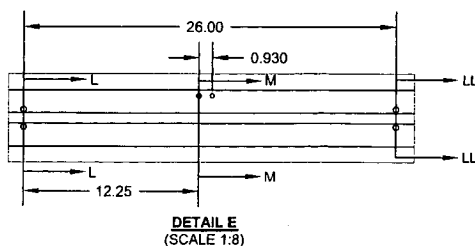
NOTE: Date & initial all entries

8 7 6 5 4 3 2 1



**D3391-013 MID TUBE ASSEMBLY PARTS LIST**

QTY -013	PART NUMBER	DESCRIPTION
X	D3391-013	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
12	D3681-1	SPACER
4	D3672-1	WASHER
4	D3672-3	WASHER
24	AELS-1032-130	INSERT
4	ALS4-428-165	INSERT
4	AN960C10L	WASHER
4	AN960C416L	WASHER
4	MS27039C1-09	SCREW
4	MS27039C4-08	SCREW



**D3391-013 MID TUBE ASSEMBLY**  
 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION  
 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015  
 3) WELDING: PER DART QSI 004

DESIGN	HA	<b>DART AEROSPACE USA, INC</b>	
DRAWN	JP	PORT HADLOCK, WA	
CHECKED		DRAWING NO. D3391	REV. G
MFG. APPR.		SHEET 5 OF 8	
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	1:20
DATE	07.07.31	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL. NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

**RELEASED**  
07.11.06

NO. 41184  
 WORK ORDER  
 WITHOUT NOTICE  
 SHOP COPY  
 RETURN TO  
 ENGINEERING  
 CONTROLLED COPY  
 SUBJECT TO AMENDMENT

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

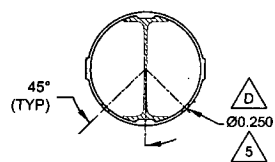
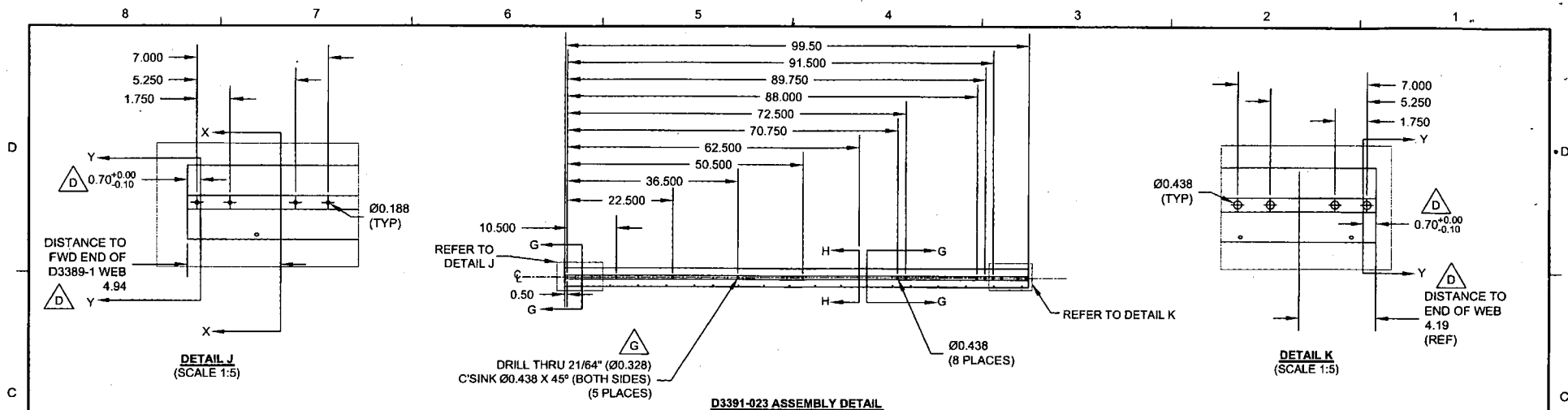
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

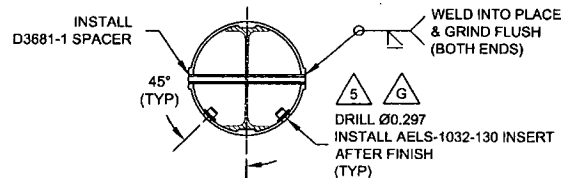
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

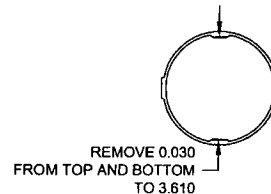




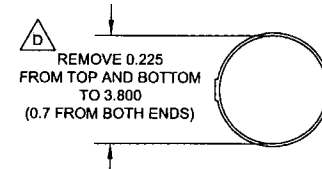
SECTION G-G  
(SCALE 1:4)



SECTION H-H  
(SCALE 1:4)



SECTION X-X  
(SCALE 1:4)



SECTION Y-Y  
(SCALE 1:4)

D3391-023 MID TUBE ASSEMBLY PARTS LIST

QTY - 023	PART NUMBER	DESCRIPTION
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AELS-1032-130	INSERT

RELEASED  
07.11.06/11

DESIGN	AM	DART AEROSPACE USA, INC	
DRAWN	JPC	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. G
MFG. APPR.		D3391	SHEET 6 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	1:20
DATE	07.07.31	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

NO. 41189  
D3391-023 MID TUBE ASSEMBLY  
MATERIAL: MAKE FROM D2500-1-100 EXTRUSION  
INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015  
WELDING PER PART QSI 004  
STOP COPY  
RETURN TO  
ENGINEERING  
CONTROLLED COPY  
TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER

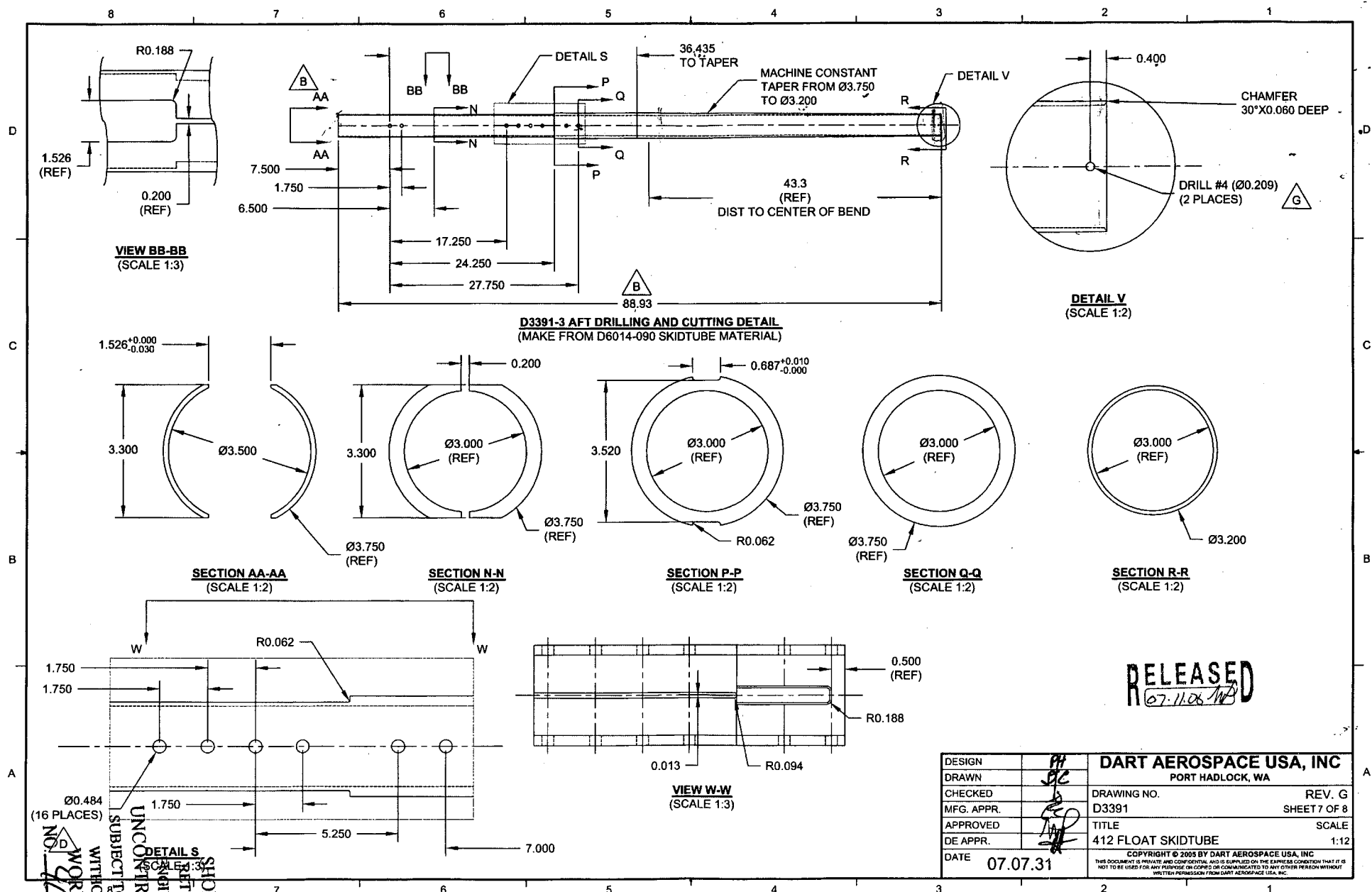
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



**Dart Aerospace Ltd**

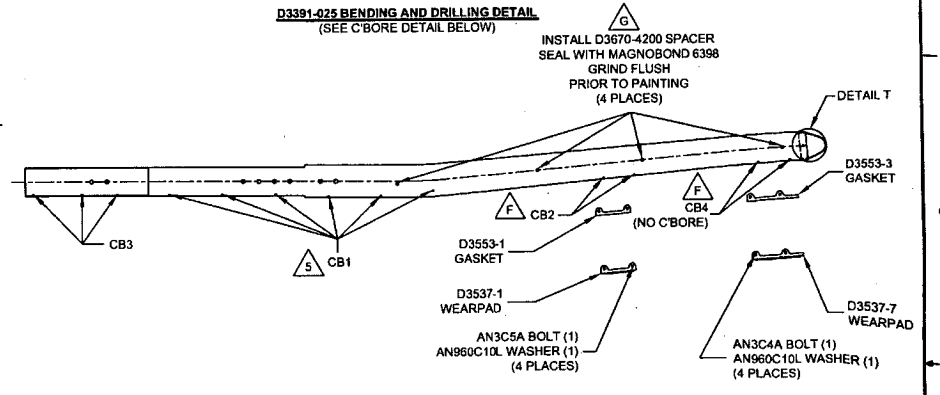
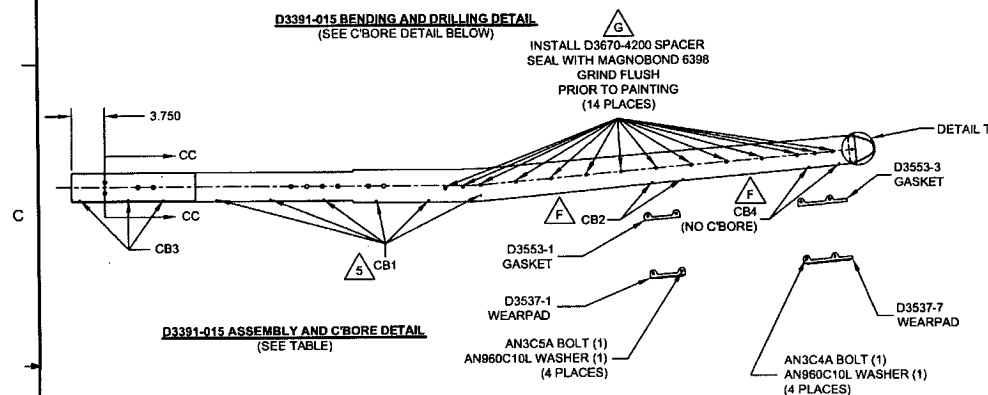
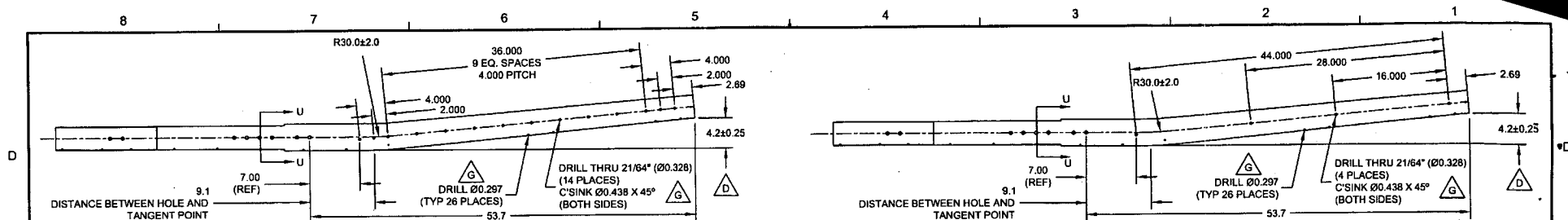
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

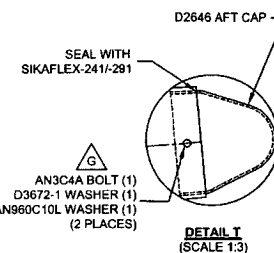
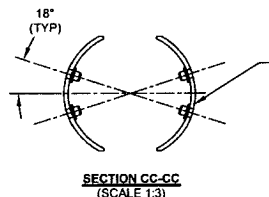
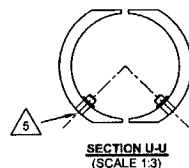
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



#### D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST

QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X	X	D3391-015	AFT TUBE ASSEMBLY
		D3391-025	AFT TUBE ASSEMBLY
1	1	D6014-090	AFT TUBE
1	1	D2646	AFT CAP
1	1	D3537-1	WEARPAD
1	1	D3537-7	WEARPAD
1	1	D3553-1	GASKET
1	1	D3553-3	GASKET
14	4	D3670-4200	SPACER
2	2	D3672-1	WASHER
14	14	AELS-1032-130	INSERT
12	12	AELS-1032-225	INSERT
4	4	ALS4-428-165	INSERT
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
10	10	AN960C10L	WASHER



RELEASED  
07-11-06

C'BORE HOLES MARKED CB1-CB4 AS FOLLOWS AND INSTALL AELS-1032-XXX AFTER FINISH AS NOTED

HOLES MARKED	QTY D3391-015	QTY D3391-025	C'BORE	P/N
CB1	12	12	Ø0.430 X 0.170	AELS-1032-225
CB2	4	4	Ø0.430 X 0.170	AELS-1032-130
CB3	6	6	Ø0.430 X 0.040	AELS-1032-130
CB4	4	4	NONE	AELS-1032-130

DESIGN	PH	DART AEROSPACE USA, INC
DRAWN	SK	PORT HADLOCK, WA
CHECKED	JS	DRAWING NO. D3391
MFG. APPR.	JS	REV. G SHEET 8 OF 8
APPROVED	JS	TITLE 412 FLOAT SKIDTUBE
DE APPR.	JS	SCALE 1:12
DATE	07.07.31	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC

NO. 411889  
WORK ORDER  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
UNCONTROLLED COPY  
ENGINEERING  
RETURN TO  
SHOP COPY  
SHOULD BE  
RETURNED TO  
DART AEROSPACE USA, INC

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Compensation for shorter aft tube

TAPER PER  
D3391 REV. G

0.340

Ø3.20

deviation 88.875

nominal = 88.93

